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Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1-34 (canceled)

35. (previously presented) An improved oil separation process for production of a composition free of denatured proteins from a material comprising lipids and proteins, said material having a biological origin, the process comprising the steps of:
(a) predetermining a denaturing temperature of a material comprising lipids and proteins;
(b) rapidly freezing the material;
(c) mechanically treating the material;
(d) heating the material to a working temperature, wherein said working temperature is below the denaturing temperature; and
(e) separating a composition comprising protein and at least one of the group consisting of fat and lipid, said composition being free of denatured proteins.

36. (previously presented) The process according to claim 35, wherein the freezing and heating steps are performed repetitively.

37. (previously presented) The process according to claim 35, wherein in the freezing step the material is frozen to a temperature of 0°C to –50°C, preferably to a temperature of 0°C to –6°C.

38. (previously presented) The process according to claim 35, wherein the step of mechanically treating of the material is at least one of the group consisting of grinding, milling, chopping and pressing.

39. (previously presented) The process according to claim 35, wherein the material is a grax.

40. (previously presented) The process according to claim 35, wherein the composition further comprises trace elements.

41. **(currently amended)** The process according to claim **40** [[20]], wherein said trace elements are vitamins.

42. (previously presented) The process according to claim 35, further comprising isolating at least one component of said composition.

43. (previously presented) The process according to claim 35, wherein the process is performed under at least one of a vacuum and under an inert atmosphere.

44. (previously presented) The process according to claim 35, further comprising adding a pre-treatment compound to the material prior to mechanically treating the material.

45. (previously presented) The process according to claim 44, wherein said pre-treatment compound is at least one of the group consisting of: an enzyme, a solvent, an emulsion-bursting material, and an emulsion-inhibiting solution.

46. (previously presented) The process according to claim 35, further comprising adding a pre-treatment compound to the material subsequent to mechanically treating the material.

47. (previously presented) The process according to claim 46, wherein said pre-treatment compound is at least one of the group consisting of an enzyme, a solvent, an

treating mechanically of the material is at least one of the group consisting of grinding, milling, chopping and pressing;

thawing the treated biological material to a first temperature wherein the thawing step is performed using heating selected form the group consisting of microwave heating, heat exchanging heating, infra-red heating, and electric conduction heating;

separating oil from the thawed biological material at the first temperature;

estimating a first yield of oil from the thawed biological material at the first temperature;

warming the treated biological material to another temperature;

isolating oil from the thawed biological material at the another temperature;

calculating another yield of oil from the thawed biological material at the another temperature;

optimizing an extraction temperature to separate oil from the biological material by considering factors selected from the group consisting of oil yields, peroxide concentration numbers, percentages of free fatty acid, vitamin A concentrations, viscosity and anisidine values,

wherein the biological material is selected from the group consisting of fish liver, whale blubber, soy beans, sunflower seeds, olive seeds, corn seeds, algae, yeast, cell culture material, and bacteria.

54. (new) The process according to claim 53, further comprising the steps of:

adding a pre-treatment compound to the material prior to mechanically treating the material, wherein said pre-treatment compound is at least one of the group consisting of an enzyme, a solvent, an emulsion-bursting material, and an emulsion-inhibiting solution, wherein the enzyme is selected from the group consisting of cellulase, collagenase and lysozyme. wherein the solvent is hexane, wherein the emulsion-bursting material is salt;

avoiding forming three phases in which the three phases comprise a proteinaceous phase, a free water phase, and an oil phase;

emulsion-bursting material, and an emulsion-inhibiting solution.

48. (previously presented) The process according to claim 35, wherein at least one anti-oxidant is added in at least one step of the process.

49. (previously presented) The process according to claim 35 wherein in the denaturing step the denaturing temperature is determined by visual observation.

50. (previously presented) The process according to claim 35, wherein in the denaturing step the denaturing temperature is determined by viscosity measurement.

51. (previously presented) The process according to claim 35, wherein the freezing of the material occurs at a rate of approximately 1° C per minute.

52. (previously presented) The process of claim 35, wherein step (a) further comprises the steps of:

(i) determining a first lowest temperature at which any protein in the material starts to denature; and

(ii) determining a second temperature below said first lowest temperature, at which no proteins denature.

53. (new) An improved separation process for production of oil from a biological material, the process comprising the steps of:

freezing the biological material such as to make membranes surrounding cells in the frozen biological material brittle and rupture to liberate contents of the cells wherein the freezing step the biological material is frozen to a temperature of 0°C to –50°C wherein the freezing step is performed at a rate of about -1 °C / minute;

treating mechanically the frozen biological material to produce particles having a mean particle diameter not exceeding 50 millimeters wherein the step of

determining a denaturing temperature by visually inspecting the oil for visible stringy agglomerates and agglomerate precipitates

refining the oil;

deodorizing the oil; and

adding an antioxidant containing tocopherol to the oil.